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Committee on the Peaceful Uses of Outer Space

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Vienna

Chairman: Mr. Hohenfellner . . . . . (Austria)

The meeting was called to order at 10.10 a.m.

Ways and means of maintaining outer space for peaceful purposes *(continued)*

Mr. Suárez Amezcua (Mexico) (*interpretation from Spanish*): There is no doubt that the item entitled "Ways and means of maintaining outer space for peaceful purposes" is one of the most meaningful on the agenda. No expert on this subject, whether at the scientific, institutional or academic level, can ignore the aspiration of the international community to explore and use outer space for the benefit of mankind, for peaceful purposes and under a legal regime acceptable to all States.

In this connection, it is useful to note that the Committee on the Peaceful Uses of Outer Space (COPUOS) has an important role to play through its scientific and technical and legal activities towards ensuring that outer space is maintained for peaceful purposes. My delegation is therefore convinced that COPUOS is in a position to get all States to aim their research, use and exploration activities in that direction. For that purpose, it is important for the Committee to foster the development of space law through the formulation, where appropriate, of international agreements regulating various space technologies with a view to promoting the consolidation of international legal instruments on space and to encouraging the conclusion of instruments that are now under formulation.

On several occasions we have noted the suggestion of a number of delegations that the Committee should complement its work by seeking a greater presence in other multilateral forums or in bilateral negotiations on space matters. The delegation of Mexico thinks these proposals are of value, and would add that the priority objective of this strengthening of the Committee's presence should be the prevention of an arms race in outer space. My delegation is convinced that COPUOS could make a valuable contribution to discussions and negotiations in the Conference on Disarmament, for the militarization of outer space would carry risks that together could block measures towards international cooperation in that sphere.

I wish in conclusion to reiterate my delegation's interest in the establishment of flexible and appropriate coordination machinery between COPUOS and the Conference on Disarmament, which would involve agreeing on a timetable setting out the time frames and pacing of progress in that direction. We understand the challenge this would pose for the Committee in terms of achieving agreement among member States on undertaking such an exercise. But we trust that COPUOS will be able to convene necessary meetings and to have access to additional resources such as studies, documents and technical and scientific opinions with a view to promoting the necessary first steps in this direction.

The Chairman: We have thus concluded our consideration of agenda item 4.

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Report of the Scientific and Technical Subcommittee on the work of its thirty-second session (A/AC.105/605) *(continued)*

Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space *(continued)*

The Chairman: I call on the United Nations Expert on Space Applications.

Mr. Abiodun (United Nations Expert on Space Applications): Mr. Chairman, I am grateful to you for giving me this opportunity to address the Committee on the activities of the United Nations Programme on Space Applications during the Committee's consideration of agenda items 5 and 7 at its current session.

Members are all fully conversant with the expanded mandate of the United Nations Space Applications Programme, which directs the Programme to focus on the provision of long-term fellowships; the organization of training courses, workshops and conferences; the provision of technical advisory services; the development of indigenous capability at the local level; the provision of space information; and the promotion of greater cooperation in space science and technology. My present statement will highlight how we have translated the relevant directive of the General Assembly into practical activities within the 1994-1995 period. It will also provide an indication of the proposed activities of the Programme for 1996. Details of these activities are contained in my current report, document A/AC.105/595, which is before the Committee.

At the 1994 session I briefed the Committee on the progress we had attained in the establishment of the Centres for Space Science and Technology Education. We have moved from that stage to a new frontier. The procedures which we have adopted and which all potential host countries are familiar with are the following: the requirement of a formal indication to the United Nations Office for Outer Space Affairs by a Member State of its interest in hosting the centre in a given region; the organization of an evaluation mission by the United Nations Office for Outer Space Affairs and the participation of experts from outside the United Nations in each such mission to all interested potential host countries in a given region; the analysis of the mission report and identification of the host country by the United Nations Office for Outer Space Affairs; and the establishment of a governing board to assume all responsibilities for the centre once a host country has been identified.

We are still awaiting a number of specific significant details from Africa and the Middle East before we can identify the location of the centre in each of those two regions. The details we have requested include the role of in-country academic and research institutions in the work programme of the centre, a detailed financial plan by each prospective host country that will ensure the sustainability of the centre, and the plan of each prospective host country for inaugurating the centre and for ensuring that once established it will serve the overall interests of all the countries in the region concerned. Discussions on the establishment of a centre for the States members of the Economic Cooperation Organization (ECO) are in progress with the Government of the Islamic Republic of Iran.

As co-hosts of the Centre in Latin America and the Caribbean, Brazil and Mexico are working closely with the Office for Outer Space Affairs to establish and inaugurate this Centre at the earliest opportunity. This particular Centre will fulfil a major aspiration of this region, particularly in indigenous-capacity development.

Following the identification of India as the starting node for the Centre in Asia and the Pacific, the Government of India convened a planning meeting of member States in the region from 24 to 25 January this year at the headquarters of the Indian Space Research Organisation in Bangalore, with a view to planning the inauguration of this particular Centre. A draft agreement which will establish the legal status and statutes of the Centre was reviewed and modified by all the participants at that meeting. India has since forwarded this revised draft agreement to all the countries of Asia and the Pacific for their concurrence. Arrangements are now being finalized for the signing of this particular agreement.

We are now also developing a model curriculum for these Centres. The initial work on this curriculum was accomplished at the Workshop that was organized and hosted by the Government of Spain in Grenada in February and early March this year. The model curriculum that emanated from this Workshop is currently undergoing peer review. This finished model curriculum will provide each Centre with a benchmark of

the academic level necessary for international recognition. Thus, the international standard and character of the Centres should be preserved.

In addition to providing opportunities for each scholar to gain the necessary knowledge, research experience and application skills in his or her chosen area of space science and technology, the model curriculum also requires such individuals to complete an obligatory common programme at the beginning of their studies at the Centre. The successful completion of this initial obligatory programme, which is the same for all participating scholars, is a prerequisite to the enrolment of each scholar in his or her chosen field of study. This common model will provide all the scholars with an overview of the observation of the Earth and its environment from space and the use of data collected in such a process in atmospheric and terrestrial analysis. The common model will also expose the scholars to the physical principles of remote sensing; satellite orbital characteristics; operational sensor systems; satellite and ground-based communications; the impact of global-positioning satellites on the integration and construction of remote sensing and geographic-information-system databases; and the demonstration of selected environmental applications. The full text of the model curriculum for the Centres will be published before the end of this year.

In the area of long-term fellowships for in-depth training, the long-term fellowship programmes offered by the Governments of Brazil, China and the European Space Agency (ESA) are continuing. These fellowship awards are for studies in remote-sensing technology, with emphasis on research, applications and information systems; geodesy; photogrammetry; satellite meteorology; communications systems; and space antennas and propagation. The status of these offers is shown in annex II to my current report.

In the area of training courses, workshops and conferences, activities organized in 1994 in this category addressed, among other things, global change; application of radar data in the management of Earth resources; remote-sensing education for educators; space technology as a tool for accelerating national development; and the enhancement of scientific cooperation, particularly in basic space science, with emphasis on education, training and research at the national and international levels. Details of these 1994 activities are contained in documents A/AC.105/555, A/AC.105/581, A/AC.105/586, A/AC.105/588, A/AC.105/589, A/AC.105/594 and A/AC.105/596, and the activities are also summarized in paragraphs 37 through 64 of my current report.

In addition, the 1995 activities of the Programme have addressed and will address the development of model curricula for Centres for Space Science and Technology Education; the use of space technology to combat natural disasters, including the use of high-resolution satellite images for monitoring refugees under disaster conditions; the role of the atmosphere on human activities here on Earth, including the impact of human interactions with this medium; the monitoring of desert pollution, land degradation and desertification; and optical systems used in space exploration, with emphasis on atmospheric and Earth observations from space.

The proposals for 1996 are contained in paragraph 66 (a) through (h) of my current report. In this connection, it should be noted that the spin-off Workshop to be held in the United States and the Workshop on small satellites missions to be held in Spain, which were originally scheduled for 1995, have been rescheduled for 1996 at the request of both Governments. These two Workshops have also been upgraded and will be organized as conferences.

In the area of space information, in addition to the COPINE project — a satellite-based information system which I will address later in this statement — the Programme has issued the sixth edition of the Seminars of the United Nations Programme on Space Applications in document A/AC.105/584. This publication, which is now before the Committee, contains selected papers from the 1994 activities of the Programme.

We have also initiated steps to update the Directory on Education, Training and Research Opportunities in Space Science and Technology and its applications. In the immediate future, we plan to replace the Directory on Information Systems with a new Directory of Information Resources available on-line.

The Programme continues to enjoy the full support and cooperation of many countries and entities worldwide. The following member States, international organizations, agencies and entities provided support for the 1994-1995 activities of the Programme: Australia, Austria, Brazil, Canada, China, Egypt, France, Germany, Israel, Italy, Mexico, Norway, Pakistan, Peru, the Republic of Korea, Spain, Sweden, the United Kingdom, the United States of America and Zimbabwe, as well as the European Space Agency, the Commission of European Communities, the European Union, the International Mobile Satellite Organization, the

International Telecommunication Union, the United Nations Department of Development Support and Management Services, the International Centre for Theoretical Physics, and the Planetary Society.

I am also pleased to report that the Programme received $25,000 from the Government of Spain in support of the International Meeting of Experts for the Development of Model Curricula for the Centres for Space Science and Technology Education, which was held at the University of Grenada in late February and early March this year. The Programme also received $100,000 from the European Space Agency for the 1995 activities being co-sponsored by the Agency, as shown in annex III to my current report. The Government of the United States of America has also contributed $30,000 in support of the Conference on Spin-off Benefits of Space Exploration and Utilization to be held in the spring of 1996 in the United States. The Government of Austria also has just announced its contribution of $20,000 in support of the 1995 activities of the Programme. Brazil, China and the European Space Agency are also defraying the local expenses of candidates from developing countries that are participating in the long-term fellowship programmes described in paragraphs 16 to 20 as well as in annex II to my current report.

On this occasion, I wish particularly to thank all representatives here and their respective countries, organizations and agencies for their continued support of the United Nations Space Applications Programme. This support is crucial, even indispensable, in our efforts to improve the management of available resources, enhance global communications, and develop the necessary information-exchange infrastructure that could lead to improved quality of human life.

It is also appropriate that I offer my thanks to my colleagues within the United Nations system, including those in the regional economic commissions, who continue to assist the Programme on Space Applications to accomplish its objectives. To all my colleagues, both professional and General Service staff, in the Space Applications Section and the Committee Services and Research Section, as well as to Mr. Jasentuliyana, the Director of the Office for Outer Space Affairs, I offer my sincere thanks for the various contributions they have made, individually and collectively, in support of the activities of the Programme.

I wish now to touch on the manner in which the Programme has addressed the needs and aspirations of Member States, as directed over the years by this Committee and the Scientific and Technical Subcommittee and by the relevant General Assembly resolutions. These efforts of the Programme are also clearly in line with the recommendations and conclusions of relevant major United Nations conferences such as the United Nations Conference on Environment and Development, held at Rio de Janeiro in 1992, and the reports of the Secretary-General such as the Agenda for Peace and the Agenda for Development.

Specifically, the Programme is currently collaborating with the Department of Development Support and Management Services (DDSMS) and the European Space Agency (ESA) to implement a number of follow-up projects in Latin America and Africa. These projects have emanated from the ongoing Frascati Training Course series, which is jointly sponsored by the foregoing entities. They will address data acquisition, maintenance of software and hardware components, technical advisory services, preparation of technical documents, and organization of ad hoc training courses to support ongoing projects that could benefit from the use of such data for policy-making and improved management.

There is also ongoing cooperation between the Programme and the Junta del Acuerdo de Cartagena (JUNAC) and the Corporación Andina de Fomento (CAF) to establish a multi-national Andean enterprise (MAE). MAE will operate the COTOPAXI ground receiving station in Ecuador for all the countries that are within its coverage area. The feasibility study for the establishment of this enterprise is now in progress.

The Programme has also been closely associated with the Asia-Pacific Satellite Communications Council (APSCC) from its inception in 1992, through its gestation period thereafter, to its birth in October 1994 at Seoul, Republic of Korea. It should be noted that the Council was established to address a number of concerns within the Asia-Pacific region, among which are the following: the need to promote cooperation and harmonization in satellite communications development and utilization in the region; the need to promote the gaining of access to information by island States and to provide for better cooperation in the region; and the need to bridge the gaps between groups with competing interests, particularly those interested in such important issues as education, health care and welfare and those institutions and organizations that are mostly interested in the technical and business aspects of telecommunications.

According to its proponents, the Asia-Pacific Satellite Communications Council should champion the provision of satellite services to rural areas in the region and should also play a leading regional role on a number of technical and regulatory issues in order to achieve an integrated information infrastructure in the region. With the commitment of its members and the support of the international community, the Asia-Pacific Satellite Communications Council can assist the region in facing the opportunities and challenges ahead.

Since 1991, the Programme has been conducting a series of annual Workshops on Basic Space Science; these have addressed a variety of topics, including the worldwide development of planetary exploration, and astronomy, which are two items before this Committee. These Workshops focus particularly on education, research and cooperation as prerequisites for the development of space science and technology capabilities at the national, regional and international levels. Projects which have emanated from deliberations of these Workshops and which are enhancing regional and international cooperation include the following: the establishment of an astronomical telescope in Sri Lanka; the operation of an astronomical observatory in Honduras; the development of the Inter-African Astronomical Observatory on the Gamsberg in Namibia; and the upgrading of the Kottamia Observatory in Egypt.

In 1989, 156 nations joined in sponsoring a General Assembly draft resolution which proclaimed the period 1990-2000 as the International Decade for Natural Disaster Reduction (IDNDR). The Decade is expected to focus on the development and application of new technologies in the field of disaster management. In his 1992 report "An Agenda for Peace", the Secretary-General noted that drought and disease can decimate no less mercilessly than the weapons of war. So at this moment of renewed opportunity the efforts of the Organization to build peace, stability and security must encompass matters beyond military threats in order to break the fetters of strife and warfare that have characterized the past.

Like a physician who is looking for a preventive medicine or a fire department chief who is trying to develop a fire-prevention programme, the United Nations Programme on Space Applications has been contributing to the lessening of the environmental vulnerability of our planet Earth and the daily attendant environmental refugees. We cannot prevent earthquakes, floods, hurricanes and other identifiable natural hazards from occurring, but humanity has the knowledge and the capability to limit and control the harmful impact of these elements on its own survival. We are focusing the attention of the Programme on how space science and technology can contribute to the attainment of this goal, particularly in the affected countries. In this connection, we are addressing the capability of the technology that is needed and can be afforded at the local level to meet these needs, and the availability of these capabilities at the time and location of need.

Thus, beginning in 1991, the United Nations Space Applications Programme initiated a modest contribution in support of the IDNDR. In this connection, and in cooperation with the Economic and Social Commission for Asia and the Pacific (ESCAP) and the Office of the United Nations Disaster Relief Coordinator (UNDRO), we organized a Workshop on the Application of Space Techniques to Combat Natural Disasters, which was convened at Beijing, China, in September 1991, for the benefit of Member States in Asia and the Pacific region. We organized, with the European Space Agency (ESA), a similar activity in Mexico in September 1993 and in Harare, Zimbabwe, in May 1995, for the benefit, respectively, of countries in Latin America and the Caribbean and in Africa. We are currently consulting with the secretariat of the IDNDR, the United Nations Department of Humanitarian Affairs and interested space agencies on how we can collectively bring the full weigh: of space science and technology to bear on natural-disaster mitigation, prevention and relief. Further progress on this initiative will be brought to the attention of this Committee and its Scientific and Technical Subcommittee in the near future.

As members are all fully aware, such terms as "electronic mail" and the "information superhighway" have become established aspects of our daily communication lives. Effective participation by developing countries in facilitating national, regional and international programmes requires that they gain reliable and unimpeded access to regional and global information networks and that they be able to use such systems to achieve their objectives. Indeed, information is now becoming the most important global commodity; through it, with the aid of satellite services, one can secure employment and new markets, and improve the health and education of any community, including particularly the rural areas. As the Committee was informed by the Director of the Office for Outer Space Affairs, a number of the activities of the Office, including those of the Space Applications Programme, can be found in the Internet Home Page of the United Nations Office at

Vienna; this Home Page can be located on computers by using the appropriate address, which will be provided to members in writing.

Moreover, inadequate exchange of information not only inhibits cooperation between nations, their scientists and their professionals but is also a major hindrance to national development, regional cooperation and global interaction. Without such a linkage and subsequent interaction, experiences are not shared, and a life-saving measure in one part of a country or a continent may never be known elsewhere.

In 1992, the United Nations Conference on Environment and Development, in Rio de Janeiro, recognized the undeniable and catalytic role of information exchange in development efforts. In its conclusions on science for sustainable development, Agenda 21, chapter 35, paragraph 35.22, the Conference proposed a number of activities for building scientific capacity and capability, and directed that efforts should be undertaken to develop, strengthen and forge new partnerships among national, regional and global capacities to promote the full and open exchange of scientific and technological data and information and to facilitate technical assistance related to environmentally sound and sustainable development. According to Agenda 21, this should be done through the development of mechanisms for the sharing of basic research, data and information, and the improvement and development of international networks and centres, including regional linking with national scientific databases, for research, training and monitoring. Such mechanisms should be designed so as to enhance professional cooperation between scientists in all countries and to establish strong national and regional alliances between industry and research institutions.

In line with the foregoing elements of Agenda 21, African professionals, at the United Nations Regional Conference on Space Technology for Sustainable Development in Africa, held in Dakar, Senegal, in October 1993, called for an improvement in the existing state of information exchange within Africa. This recommendation of the Dakar Conference has since been translated by the Office for Outer Space Affairs, within the framework of the Space Applications Programme, into a project called "COPINE" — a Cooperative Information Network Linking Scientists, Educators and Professionals in Africa — which focuses on the implementation of a satellite-based information system.

Initially, COPINE would immediately aim at improving the collection, transmission, distribution and exchange of information — particularly in such areas as health care, agricultural research and development, management of natural resources and the environment, education, and science and technology — within the international community. In any of the participating countries, the COPINE system could be developed to have the capabilities for electronic-mail services such as Internet and for voice communications, subject to local PTT approval. However, the primary focus of COPINE is the use of its wide-band capabilities to provide a variety of information-delivery services, particularly computer file transfer, interactive data transfer, document transmission, and imagery and video transmissions, including video conferencing, distant teaching and tele-medicine. These wide-band capabilities distinguish COPINE from wire services.

The project also will strengthen collaboration between and among African and international institutions, and thus provide a vehicle for the transfer of know-how and technology. Through COPINE, access to current global and regional scientific information and research results will provide needed nourishment for creativity and should sustain a critical mass of highly qualified scientists in African countries; indeed, it may also stem brain drain. Such information linkages among networks of professionals, scientists and universities at the regional and international levels should strengthen national capacities in the formulation of policy options particularly in the field of health care, food security, natural resources utilization, environment and education. If successful, this project can be expanded to all the African countries, and also replicated in other developing regions of the world.

The United Nations Development Programme Special Unit for Technical Cooperation among Developing Countries has expressed its interest in working with the Office for Outer Space Affairs to address the urgent need to establish an efficient communication network/linkage among African professionals and scientists at national and subregional levels. In this connection, the Special Unit and the Office for Outer Space Affairs are planning a joint mission to determine, as accurately as possible, the user requirements for the services of information exchange networks such as COPINE. We are also working through the European Space Agency to seek necessary financial support for the COPINE system.

As we look to the future and as we celebrate the fiftieth anniversary of the United Nations this year, 1995, let us not forget that one of its babies, the United Nations Space Applications Programme, will be 25 years old next year, 1996.

From its inception to its current level of activities, the Programme has undergone a number of metamorphoses. The most significant of these are the second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82) and its space applications-related recommendations, which were endorsed by General Assembly resolution 37/90 and which I restated at the beginning of this intervention. Since 1982, the Programme has faithfully complied with the letter of these recommendations. In addition, it has broken much new ground and has thus made itself relevant in addressing the needs of Member States, particularly the developing countries, which it was established to assist.

Specifically, and through a whole spectrum of activities in space applications, space technology and space science, the Programme has addressed national, regional and global issues that have been entrusted to it by this Committee and its Scientific and Technical Subcommittee. Some of these issues have also been articulated in a number of major United Nations conferences, including the Rio Conference in 1992 and the Social Development Conference in Copenhagen this year. The spectrum of activities in question includes those dealing with indigenous capacity and capability development through education and training, such as the centres for space science and technology education; disaster mitigation and relief; the development of small payloads in mini satellites; development and establishment of information exchange networks, such as COPINE; spin-off benefits of space exploration; understanding of the atmosphere and its impact on our daily lives; the establishment of essential infrastructure for the acquisition of Earth observation data and the corresponding use of such data in many facets of human lives; and the organization of many activities dedicated to regional cooperation, such as the establishment of the Asia-Pacific Satellite Communications Council and the organization of the Cotopaxi project.

When it was globally popular to focus attention exclusively on technology transfer, the Programme cautioned that technology transfer by itself cannot take place in a vacuum and that it can succeed only if the recipient country has imbibed a science and technology culture, through education and research. We also cautioned that it is not enough to know what a particular technology can do but that it is equally important to know how that technology works, and why it works the way it does. Today, this Committee can take credit for supporting the initiative to establish the Centres for Space Science and Technology as a way of addressing these critical development issues.

The workshops and conferences organized under the auspices of the Programme are constantly being adjusted to reflect the decisions of this Committee and the needs of participating Member States. These activities have also resulted in follow-up work that is not only current in its objectives but also very relevant to national and regional needs. The Programme has succeeded in motivating Member States to participate in a variety of space-related activities, including those that are organized by other entities. A case in point is the United Nations/Sweden Training Course on Remote Sensing Education for Educators, which is constantly over-subscribed; this year we received over 120 applications globally, for 27 available places. Similarly, this year, we received over 100 applications for the four ESA fellowships on remote-sensing information systems, remote-sensing instrumentation, space antenna propagation and communication systems.

While the work of this Committee, which is always reflected in the work of the Programme, includes international cooperation, we must always remind ourselves that today the global community consists of space-faring and non-space-faring countries — the haves and the have-nots. The United Nations Space Applications Programme and other similar entities offer a unique participatory opportunity to a number of countries, particularly the non-space-faring countries, to share in the direct and indirect benefits of space exploration, and equip them to effectively contribute to and participate in national, regional and international programmes in which space technology can play a meaningful role.

In conclusion, I wish to state that the level at which any programme, including the United Nations Programme on Space Applications, can function is dictated by the resources, both human and financial, that are available to it. Since 1982 the lion's share of the financial resources being utilized by the Programme to carry out its activities have come from voluntary contributions offered by a number of countries, as well as by some governmental and non-governmental organizations.

As we look to the future — particularly to the proposed UNISPACE III — we need to recognize that, as it has already demonstrated, the Programme is capable of addressing some of the space-application-related needs of Member States, especially the developing countries, and is able to respond to a number of relevant concerns that have been articulated in major United Nations conferences, as well as in the reports of the Secretary-General. However, if the Programme is to function in this manner it will need to be a bolder Programme — one that not only seeks cooperation with Member States and international organizations but can effectively support such cooperation arrangements as an equal partner. I hope that these concerns will be taken into consideration in the Committee's deliberations now and in the future.

Mr. Lessrad (Canada) (*interpretation from French*): My delegation does not intend to repeat the positions that it already expressed at the thirty-second session of the Scientific and Technical Subcommittee. Besides, having taken note of the report submitted for our consideration, my delegation finds it entirely satisfactory. At this stage I want simply to state my Government's position on one or two particular issues that appear in the Subcommittee's report and have been raised during this session.

First, let us look at the question of space debris. Like many others, my delegation attaches great importance to this issue. There is no doubt whatsoever that this phenomenon represents a growing danger for both satellites and other craft launched into space, but also for astronauts carrying out their activities there — not to speak of the risks to installations and individuals on the ground in the event of one of these craft re-entering the atmosphere and falling to Earth.

In this context, my delegation is pleased that at its last session the Scientific and Technical Subcommittee adopted a multiyear plan of work to guide its consideration of this phenomenon. That initiative will be linked with the parallel efforts of certain other national and multinational organizations that are also addressing the issue — and in this context I might mention the work of the United States national research centre, which should be producing a report in the near future, as well as the Committee on International Coordination, directed by the United States and involving certain other launcher States, and the European Space Agency.

We are sure that all these initiatives, when completed, will in the long term make it possible to improve knowledge of the scientific and technical aspects of space debris and will facilitate the implementation of specific measures to avoid the creation of new debris, as well as to minimize the harmful consequences of existing debris. Moreover, we note that several similar practical measures have already been adopted on a voluntary basis by various contributors, in keeping with the design and production of space craft and of the launch vehicles that put them into orbit. We vigorously encourage such efforts, in which, we are participating in many respects, and we hope that the greatest possible number of States or organizations concerned will subscribe to them.

In this context, my delegation agrees with many others that it is premature, for the time being, to ask the Legal Subcommittee to address this issue, particularly with a view to the preparation of applicable principles. Such an effort, if ever necessary, will certainly benefit from more detailed consideration by the Scientific and Technical Subcommittee and other bodies responsible for scientific and technical aspects of this phenomenon, as well as from the practical experience of States in this sphere. Our position will need to be re-evaluated, depending on the progress that is made.

I should like now to address the issue of the possible convening of a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space.

My delegation has no objection in principle to the organization of such an event. On the other hand, we believe that more discussion is required with regard to the important question of the objectives or, in other words, the anticipated results of such a conference. In our view, it is absolutely essential that the recommendations that emerge from such a conference provide real added value — that is to say, that they can serve as a practical guide to facilitate increased international cooperation in the various spheres of the peaceful use of space, bearing in mind cooperation machinery already in existence. These recommendations should be focused and realistic, taking into account in particular the resources available for implementing them, and should meet the aspirations of the entire community. If these conditions can be met, and if such an event can promote better understanding between the countries interested in this issue, it will have been a success.

My delegation remains available to take part in further discussion of this question and to attempt to reach consensus, if possible during this session or in the near future, on the questions of the agenda, the venue, the level of participation and the funding of such a

conference — questions on which considerable progress has already been made.

Finally, we believe that it is also necessary to keep our minds open with respect to alternative methods of achieving the same result. After all, it is results that matter.

Mr. Velazco san José (Cuba) (*interpretation from Spanish*): I should like to express my delegation's satisfaction, Mr. Chairman, at your continued leadership of the Committee on the Peaceful Uses of Outer Space.

I want to refer briefly to some of the space activities developed in my country.

Cuba has established a Space Commission, which deals with space physics, medicine, meteorology, space information, remote sensing and other matters. Following the second Space Conference of the Americas, Cuba has been working on seven cooperation projects with other countries in the region, including Mexico, Chile, Jamaica, Argentina, Brazil, Colombia and Venezuela.

In spite of the "special period" situation that Cuba is going through, space activity — in particular, links with the projects that I have mentioned — has not slackened, although we have obviously been affected by a shortage of financial resources. None the less, research groups in our country have not been dissolved, and, although we cannot say that outstanding results have been achieved, we have made some progress and are maintaining activity and interest in the subject.

In order to provide a better idea of Cuba's work in space matters, let me give some specific examples.

Regarding the use of information provided by satellites for weather forecasting, climatic phenomena and the study of the oceans, the Cuban Meteorology Institute, in cooperation with Chile, Jamaica, Mexico, Argentina, Brazil, Colombia and Venezuela, has devised logarithms for automated predictions of tropical storms on the basis of geostationary satellite images. The system covers the Caribbean Basin, the Gulf of Mexico and the Atlantic Ocean. Software is being developed for determining oceanic temperature and chlorophyll, with applications for fisheries, marine ecosystems and the study of ocean currents.

A low-cost, integral air system is being developed for the study and monitoring of agricultural resources. The most outstanding results of these projects are the detection of water-logged areas and the formation of lagoons in rice-growing areas; the evaluation of dam-building for rice-growing; the determination of grass-infestation of citrus, rice and sugar-cane crops; the approximate determination of the productivity of the biomass; and the detection of plant diseases.

Work is also being done to develop an oceanographic remote — sensing system in the greater Caribbean and a geographic information system for the utilization of space information and the crystallization of scientifically and technically important substances in microgravity.

I wish to refer now to some of the Committee's agenda items. My delegation attaches special importance to item 4, "Ways and means of maintaining outer space for peaceful purposes". That is why it promotes international cooperation on space matters, provided that it is non-discriminatory and guarantees free access for all States, in accordance with the recommendations of the Second Space Conference of the Americas and the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space. We are also in favour of convening a third UNISPACE as soon as possible.

It would also be extremely beneficial if the results of the scientific and technical activities occurring internationally in the exploration and utilization of outer space were provided rapidly, accurately and equitably to all States, in the interest of all mankind. We hope that our discussions on this subject will lead to improved cooperation on the part of the developed countries with the developing countries in the transfer of space technology for monitoring the environment and conserving natural resources.

On items 5 and 6, on the reports of the Scientific and Technical and the Legal Subcommittees, we stress once again the need for strict control over objects with nuclear power sources that are launched into space. We also reiterate the advisability of defining and delimiting outer space, in conformity with the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies. It would also be most useful for space

technology to be applied as much as possible, in particular via remote sensing of the Earth by satellite or other aerospace means, with a view to developing ecological vigilance.

We take this opportunity to express our willingness to join the group of sponsors of working document A/AC.105/C.2/L.182/Rev.2.

Finally, we express our support for all those activities of cooperation in space that help to solve the problems of deforestation, desertification, the ozone layer, global climate change, and soil erosion and deterioration, which have such a great effect on the economies of our countries. Moreover, there is a need for greater access to technology and space applications, which should be transferred by countries that possess them to the developing countries without economic or political conditions. Preferential prices should also be set for developing countries, which should receive priority access to databases and information on their own natural resources and anything that contributes to the preservation of the environment.

Mr. Piso (Romania): Allow me to express to you, Mr. Chairman, our satisfaction and pleasure at attending this session of the Committee under your leadership, devoted to the development of wider international efforts to advance the peaceful uses of outer space. I would also like to thank you for this opportunity to address this distinguished audience.

My delegation regards the report of the Scientific and Technical Subcommittee as satisfactory and complete. We intend to make a few remarks regarding recent achievements in the framework of space activities in Romania.

Important statements and resolutions of the United Nations specialized agencies affirm the need to involve all Member States in space activities, special attention being given to the developing countries. This is the only way to guide space activities towards a cooperative effort among States, specifically, as a source of mutual benefits. Romania's full agreement with the necessity of cooperation to space progress is explicit, originating in a deeper understanding of the impact of space activities on economic and social development -- a requirement and goal for my country in this last decade of the millennium.

Space means globalization and integration. Access to space opportunities means, first of all, admission as an active participant in efforts to maintain and develop human civilization. Romania, after more than three decades of participation in space activities, within the limits of economic constraints, gives concerned attention to national progress in space applications, with the ongoing purpose of integrating its specific activities within the framework of international and global programmes.

It is important to emphasize the existence in Romania of some natural conditions favourable to the development of space activities of regional and continental interest. The territory of Romania is crossed from north to south by the chain of the Carpathian Mountains, which constitutes a representative environmental factor not only for Romania but for all neighbouring countries. Meteorology, ecology and local geophysics are directly affected by this configuration. It is necessary to point out that the curvature zone of the Carpathian Mountains is a significant active geodynamic area. The permanent monitoring of this earthquake generator, correlated with observations from other characteristic geographical sites of the European continent, will be improved by a Romanian Space Agency project to establish a test zone for space-based measurements.

Other natural advantages of Romania are the Danube Delta, organized as a natural biosphere reservation of European interest, and the Black Sea. Both zones benefit from space remote-sensing technologies under international cooperation.

The space programme in Romania, coordinated by the Romanian Space Agency, is focused on existing groups of specialists in some space fields, in particular basic space sciences, life sciences, space telecommunications, remote-sensing activities for resource management, environmental protection and meteorology. Those groups are mainly composed of representatives from a relatively consistent scientific and technological field of research, development and higher education institutions.

Direct financial support from the Romanian Government is oriented mainly towards research, development and educational space activities within the framework of the Romanian Space Programme to the year 2000. It is aimed at specific needs to optimize the management of national resources and capabilities, with a view to local and regional cooperation, and at the current need for integration in the emerging global and broad-based programmes on Earth monitoring and environment, science, development and education.

It is significant that the infrastructure to be improved in the context of the Romanian Space Programme has among its major objectives the development of a national space and aerospace information centre, which we hope will be functional in early 1996, and the establishment of a national system for education in space science, technology and applications, possibly to be correlated with regional educational activities developed in the framework of the United Nations Programme on Space Applications. As my delegation has previously stated, Romania maintains its proposal to host a regional Centre for Education in Space Science and Technology, and suggests that it could be developed together with neighbouring countries in the region in the framework of broad international cooperation.

It should be mentioned that Romania agrees that free access by the users to information is necessary, together with the development of regional and global information systems. However, there is some need for international rules on the dissemination of satellite data acquired from the national territories of States. We referred yesterday to the new concepts of dual military-peaceful uses of military satellites.

Following the recommendations of the United Nations Committee on the Peaceful Uses of Outer Space, the activities of the Romanian Space Agency are guided by the following direct purposes: first, to extend the technical and human infrastructure; secondly, to increase the participation of research laboratories and institutions of higher education in space programmes of interest to Romania; thirdly, to promote and sustain their evolution to a higher international level of performance; and fourthly, to develop capacity-building.

Research and development funding has been mainly oriented towards five main directions: basic space science; space structures and technologies; communications, information and education; Earth observation and remote sensing applications; and life sciences and medicine. In the spring of this year, a national initiative for competitive funding of new space research and development projects was organized by the Romanian Space Agency under the auspices of the Ministry of Research and Technology. As we stated before, the priorities have been given as: medium-term projects and initial studies with effective spin-offs for the national economy, defined by the Romanian Space Agency together with the users and those who benefit from results; and basic and advanced space research on restrained domains, sustained by international cooperation or by the leader position of the research group in the field. Special attention has been conferred on projects with educational and training impact. The topics of the selected projects include, *inter alia*, remote sensing applications, Earth and atmosphere monitoring technology, tentative experiments and techniques on board microsatellites and sounding rockets.

Real support for the orientation of space activities in Romania is provided by the European Space Agency (ESA); in 1992 ESA and the Government of Romania entered into an Agreement on cooperation in the peaceful uses of outer space. Remarks given by ESA specialists on topics addressed by the Romanian Space Programme have contributed to increased efficiency and to the integration of some projects into the proper international programmes. The ESA has also encouraged the Romanian Space Agency's subsequent good relations with other international organizations and national agencies.

Mr. Suárez Amezcua (Mexico) (*interpretation from Spanish*): As members know, the Scientific and Technical Subcommittee engaged in priority joint consideration of two important items: "United Nations Programme on Space Applications and the coordination of space activities within the United Nations system" and "Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space".

In that connection, my delegation hopes that in the near future greater resources will be provided for the United Nations Programme on Space Applications, or that innovative alternative ways will be devised for it to gain access to increased funding.

In its reports, the Scientific and Technical Subcommittee has various forms of wording, including simply noting that divergent positions were expressed in the consideration of various items. This is a cause of concern for my Government because it does not seem to take account of the determination and interest of States in fostering and stimulating negotiations leading to productive results on matters of common interest.

Another Subcommittee item relates to the use of nuclear power sources in outer space. During the recent Subcommittee session, delegations took note of the statement made by the International Atomic Energy Agency (IAEA) drawing attention to the latest developments in nuclear safety, particularly the International Basic Safety Standards for Protection against Ionising Radiation and for the Safety of Radiation Sources, jointly adopted by the IAEA and several other

international organizations, and the new document on Emergency Planning and Preparedness for Nuclear Powered Satellite Re-Entry.

Considering the great importance and unquestionable timeliness of these preventive measures, the delegation of Mexico notes that the publication and distribution of those documents would be not only appropriate, but most useful. This Committee should certainly consider the possibility of inviting the IAEA on a regular basis to report on and provide updates of its valuable contributions in this field.

A further contribution from the Working Group on this item would be welcome and appreciated. Accordingly, COPUOS could request the Group to continue providing information obtained from States on improving the scope and application of the Principles. To maximize the effectiveness of its work, the Group might think about concentrating on these activities, without being distracted or taking on new responsibilities that would distance it from the stated goals that would be assigned to it.

The chapter on space debris also has drawn the attention of the Subcommittee. With the support provided by the decision taken at its thirty-first session and endorsed by the General Assembly in resolution 49/34, the Subcommittee focused its attention on an analysis of the data on the characteristics of the space debris environment, as well as on the preparation of a multi-year work plan for consideration of this item. The programme includes the following: measurement of space debris; preparation of mathematical models of the space debris environment; risk assessment; and measures to reduce space debris.

In this respect, I should like to note that the Government of Mexico considers this programme satisfactory and appreciates it. However, it is convinced that COPUOS could ask the Subcommittee to consider less-generalized approaches on the same basis, and also that COPUOS should weigh the possibility that the other Subcommittee — the Legal Subcommittee — might consider and analyse the issue, without losing sight of the objective of producing a preliminary document on the risks connected with space debris.

As to the possibility of convening a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, I should like to recall — at the risk of sounding repetitive — that this has the backing of resolution 49/34 of the General Assembly, which agreed also that before the timing of the conference was determined, a recommendation should be adopted by consensus on its agenda, venue and funding.

In recent months, we have noted with appreciation that deliberations on this topic have been revitalized and that developments on it have become more dynamic. This became evident during the last session of the Subcommittee. We have taken due note that the drafting group established to collect proposals on the matter has submitted a document entitled "Questions relating to a possible holding of a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space". This document contains an indicative agenda that describes three central topics: first, possibilities of cooperation in space science, technology and research; secondly, applications of space science and technology to sustainable development; and, thirdly, intensification of international cooperation in the use of space technology and applications. The examination of each of these topics is assigned to a committee.

On other occasions, the delegation of Mexico has made known its view that UNISPACE III should be held soon, preferably in a developing country. However, the Mexican authorities also understand that the international community is going through a difficult period, caused primarily by economic problems — which the United Nations has not been spared, as is evident from the rationalization of its own resources. In view of this situation, my delegation feels that the timing of UNISPACE III could be determined at a later date, when it would be more convenient to organize a well-structured conference that would be fully accepted by all the States members of COPUOS. This would preclude the possibility of a too hasty preparation of the conference, partial participation or limited political will.

Mexico would prefer that the conference take place in a developing country, although we would not by this rule out taking into account the prevailing economic conditions and the advisability of using installations and services already available to the United Nations, which could mean significant savings for the participating States and the specialized agencies.

Finally, I take this opportunity once again to express my Government's firm support for the establishment of a regional centre for space science and technology education for Latin America and the Caribbean. My delegation is confident that this session could be a unique opportunity to conclude the pending negotiations to this

end. Furthermore, stressing the advisability of having United Nations support for the creation of various regional centres of this type, Mexico deems it appropriate to suggest that in a later report of COPUOS a paragraph be included that would demonstrate the support of the United Nations, through the Office for Outer Space Affairs, for the establishment of regional centres, in conformity with General Assembly resolutions 37/90 of 1982, 45/72 of 1990, 46/45 of 1991, 47/67 of 1992, 48/39 of 1993 and 49/34 of 1994.

Mr. Navalgund (India): At the outset, I wish to state that our delegation is very pleased to note the extensive work carried out by the Scientific and Technical Subcommittee during its thirty-second session. We would particularly like to commend the various technical presentations and also an informative and useful symposium organized by the Committee on Space Research (COSPAR) and International Astronautical Federation (IAF) on the special theme, "Applications of space technology for education, with particular emphasis on its use in developing countries". We also endorse the theme chosen for the next session, "Utilization of micro- and small satellites for the expansion of low-cost space activities, taking into account the special needs of developing countries". We consider that this subject is very important and contemporary. In addition, it is also relevant for several developing States, which are considering the acquisition of capabilities for developing or operating small satellite systems.

At its thirty-second session, the Scientific and Technical Subcommittee had an extensive debate on the subject of space debris. There were also significant contributions through the working papers and national reports from several delegations. It is noteworthy that a long-term work plan was discussed and adopted by the Subcommittee. The work plan for the following three years deals with, first, the debris environment and measures; secondly, modelling and risk assessment; and, thirdly, mitigation measures. All the three major branches are very important to the development of our common understanding with a view to solving the problem of space debris. We agree that this work plan should be implemented with flexibility. Several cooperative measures are essential to tackling the problem of space debris. These should include international efforts to ensure the availability of data, the development of a standard or universally acceptable model for debris environment, and research and exchange of knowledge on protection methods.

Turning to the question of the use of nuclear power sources in outer space, we find that there have been several proposals in the past on the approach to, as well as the scope for, review of the Principles adopted by the General Assembly. We note that after broad consideration the Subcommittee agreed that at the present time revision of the Principles was not warranted. Hence we urge that greater focus be accorded internationally to the implementation of the Principles in their present form until they are further reviewed. We also endorse the Subcommittee's decision to continue discussions on matters affecting the use of nuclear power sources in outer space and any contributions to improving the scope and applications of the Principles.

We would now like to draw attention to the questions of the implementation of UNISPACE recommendations and the holding a third UNISPACE.

We note that the Working Group of the Whole set up by the Subcommittee carried out an extensive examination of the United Nations Programme on Space Applications and of the status of the implementation of the recommendations of the last Conference. The United Nations Programme on Space Applications has been making important contributions to satisfying the needs of Member States, in particular the developing States, in several areas, such as the awarding of fellowships for long-term education, the holding of short-term training courses, workshops, conferences and technical advisory services, and the provision of international space information services. In spite of meagre resources, the Programme has contributed a great deal in several areas. Our delegation supports the proposed activities as contained in the report of the Expert on Space Applications in document A/AC.105/595 and recommended by the Scientific and Technical Subcommittee.

On the subject of UNISPACE, we note with appreciation the work carried out by the Working Group of the Whole. The detailed work carried out by the drafting group set up by the Working Group of the Whole is very useful in consolidating the common views on the opportunity, objectives and organization of the conference, in addition to its examination of the achievement of the goals set for the conference by other means. We would like to draw attention to the considerable discussions we have already had over the past several years on this subject. It would be fitting to

arrive at an early conclusion of this matter, by the end of this session. To that end, our delegation would be willing to work with all interested delegations to achieve speedy progress.

Mr. Vaslikovsky (Russian Federation) *(interpretation from Russian)*: I am grateful for this opportunity to inform delegations about the work carried out in the Russian Federation to ensure security in the use of nuclear power sources.

Current experience in the use of nuclear power sources in outer space is duly reflected in the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, which were drafted by our Committee as a result of long discussions and attempts to reach agreement in the Scientific and Technical and the Legal Subcommittees and were adopted by the General Assembly in resolution 47/68 of 14 December 1992. The consensus adoption of these Principles demonstrated the harmonization of opinions of States members of the Committee on this problem and their readiness to fulfil those Principles.

In this connection, in February this year Russia presented to the United Nations a working paper analysing the extent to which the requirements of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space were being applied. In that working paper, we address the current status of the problem of ensuring the safety of nuclear power sources in outer space, set forth ways and means of implementing individual provisions of the Principles, and deal with how consistent they are with existing practice and the requirements of national regulations.

Our experts have also submitted a report on the safety of nuclear power sources in outer space. This report considers the problems of ensuring both nuclear and radiation safety when using nuclear power sources on board spacecraft. The report describes the technical features of, and the safety systems and apparatuses for, radioisotope-type and reactor-type nuclear power sources as launched by Russia into space from 1965 to 1988.

The Russian Federation continues to present annual working papers on the results of calculations of the consequences of possible collisions between space debris and reactor-type nuclear power sources at orbits between 700 and 1000 kilometres. Our experts have also prepared a report entitled "Prognosis for the emergency re-entry of a spacecraft with a nuclear power source on board". The report sets forth principles relating to the emergency re-entry of such spacecraft and the method of work of the Special Interdeparmental Coordination Committee and analyses the experience gained from breakdowns on such satellites as Cosmos-954, Cosmos-1402 and Cosmos-1900. The report can be submitted for the Committee's consideration at any convenient time in the course of this session. Copies of the report in English are available in this meeting room.

Our country is continuing its research programme on the problems of the safety of nuclear power sources in outer space. One item of fundamental importance in this respect is research on and development of future systems for ensuring nuclear and radiation safety.

From 8 to 12 January this year the city of Albuquerque in the United States hosted a symposium on nuclear energy in space. The report submitted there and the discussion demonstrated the topicality of the use of nuclear power in certain space programmes and the unity of views on the problem of ensuring the safety of nuclear power sources in outer space as well as methods of solving this important problem. Currently, discussion is going on in regard to joint programmes for the use of nuclear power sources in outer space and the solution of the problems of ensuring their safety.

The Scientific and Technical Subcommittee, in its report on its thirty-second session, agreed that there is currently no need to review the Principles Relevant to the Use of Nuclear Power Sources in Outer Space. Our delegation considers this decision to be entirely logical, bearing in mind the almost total absence of any launching of spacecraft with nuclear power sources on board.

The successful carrying out of joint programmes on nuclear power sources in outer space will make it possible to ensure in the future that principles are formulated in the best possible manner, bearing in mind the different types of nuclear power sources and future criteria for ensuring safety.

The problem of ensuring the safety of nuclear power sources is also receiving due attention from legislative organs of the Russian Federation. In March 1995, the Ecology Committee of the Russian Federation's Parliament confirmed the topicality and importance for the State of the problem of technology-generated pollution, including radioactive contamination of near outer space. The Ecology Committee suggested the inclusion of questions relating to technically-generated nuclear contamination of space in the evolving federal

programme "Ecos-RF" being carried out by the Ministry of Atomic Energy of the Russian Federation, the Russian Space Agency and other leading institutions in this field.

The Ecology Committee has also supported the convening of an international conference on space exploration, power engineering and environmental civilization in 1996 in the city of Obninsk. The conference will be organized by the State Scientific Centre of the Institute of Physics and Power Engineering of the Ministry of Atomic Energy of the Russian Federation, the Central Scientific Research Institute for Machine Construction of the Russian Space Agency, the Central military space forces Scientific Research Institute of the Military Space Forces of the Ministry of Defence, and other leading institutes of the Russian Academy of Sciences.

Apart from all this, on the initiative of the Association for the Promotion of Space Science and Technology and the European Earth and Space Institute, in collaboration with the Russian Academy of Sciences, in October 1995 we shall be holding an international seminar at the Institute for Space Research in Moscow on the problems of the pollution of space.

Mr. Perek (Czech Republic): In the Scientific and Technical Subcommittee a work plan was adopted covering important issues of the subject of space debris. At the time, it was stated that the plan was flexible, and in this spirit we should like to propose a few additions.

In the first place, the work plan makes no mention of the specific situation in the geostationary orbit. Many non-functional objects have been left in that orbit. The inclination of their orbits is steadily increasing thanks to lunisolar perturbations. Consequently, these objects are passing through the equatorial plane with relatively high velocities, and a collision is very possible, which will result in more severe damage. In the second place, objects smaller than approximately one metre cannot be detected and their number and other properties are unknown. These matters concern our agenda item on space debris as well as that on the geostationary orbit. We would prefer to discuss these topics under the item on space debris. A few words could be inserted into the work plan to this end.

There is also the question of collisions of objects with nuclear power sources with space debris. We would also prefer to discuss that question under the agenda item on space debris and to have that reflected in the work plan.

Apart from the work plan, there is a more general question which surfaced at the session of the Scientific and Technical Subcommittee. A recommendation adopted by the 1993 Radiocommunication Assembly of the International Telecommunication Union (ITU) was presented in a conference paper. The recommendation called for the reorbiting of satellites from the geostationary orbit into disposal orbits before the termination of the active life of a satellite. This is in agreement with the policy of some launching agencies and is an idea expressed in the position paper on space debris published by the International Academy of Astronautics.

In our opinion, the idea should be supported, but it is an entirely new development, because this is the first time that such an issue has been considered in an international body outside this Committee. Shall we work independently of the ITU and risk coming to a conclusion in the future that is at variance with the opinion of the ITU, or should we envisage some kind of cooperation with the ITU on this matter? We propose that the Committee consider this question and express its opinion.

I would like to make a comment on the geostationary orbit. There is one point which deserves attention: the coordination of motions of satellites which have been assigned the same nominal position in the geostationary orbit. There are a few such nominal positions in the geostationary orbit at present, but there will be many more if all the announced and coordinated requests for nominal orbital positions are approved. An inspection of the thirty-fourth report of the ITU, contained in document A/AC.105/607, shows that the maximum number of satellites sharing the same nominal position is 11 and that the maximum number of launching States sharing a nominal position is 5. It is possible that some of the planned space stations will not be realized, but still some nominal positions will be shared by several satellites belonging to different countries.

Thus, the problem is real and will have to be solved. The Committee should be aware of this question. However, if it is not taken up by the Scientific and Technical Subcommittee, it will not go unnoticed: it will probably be dealt with by the International Telecommunication Union.

I hope that I will have the opportunity to speak on the third UNISPACE at a later time.

Mr. Kristiarto (Indonesia): My delegation has noted with satisfaction the result of the work of the Scientific and Technical Subcommittee at its last session, as described in its report. As we are all aware, during the last meeting of this Subcommittee, besides having a thorough discussion of various issues on the agenda, we also had some technical presentations made by several delegations and space agencies, from which my delegation to that Subcommittee meeting derived great benefit. Allow me, therefore, to take this opportunity to express our sincere appreciation to all the delegations and space agencies that made those technical presentations at that meeting.

Let me now convey my delegation's views on some items contained in the report.

On remote sensing, I would like to express our satisfaction that the Subcommittee has given appropriate attention to the concerns of the developing countries. As we all know, the Subcommittee has reiterated its view that remote-sensing activities should take into account the need to provide appropriate and non-discriminatory assistance to meet the needs of the developing countries. It also emphasized the importance of making remote-sensing data and analysed information openly available to all countries at reasonable cost and in a timely manner. Meanwhile, in our opinion, the Subcommittee's views on international cooperation on remote sensing, as contained in paragraph 59 of its report, are very much in line with the views and needs of developing countries.

With regard to space debris, my delegation has again noted with satisfaction that, in accordance with General Assembly resolution 49/34, the Subcommittee continued its consideration of this matter on a priority basis. This is a manifestation of greater awareness of the potential danger of the uncontrolled re-entry of space debris. We therefore welcome the multi-year plan adopted by the Subcommittee. In this context, however, my delegation is of the view that, in order to give full protection to all mankind, the Legal Subcommittee at its forthcoming session should initiate the consideration of legal issues relating to space debris.

Finally, with regard to the proposed third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), I should like, on behalf of my delegation, to reiterate a point made in our previous statement — that we fully support the convening of a UNISPACE III. In this connection, we have also noted with appreciation the efforts of the Working Group of the Whole during the last session of the Scientific and Technical Subcommittee. It is our fervent hope that the Committee will give serious thought to the outcome of those endeavours.

Mr. Heiremans (Chile) (*interpretation from Spanish*): I should like to make a few points under agenda item 5 — "Report of the Scientific and Technical Subcommittee on the work of its thirty-second session".

First, in that Subcommittee the following two agenda items were considered together: "United Nations Programme on Space Applications and the coordination of space activities within the United Nations system" and "Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82)". In this connection, we believe that it is important to promote the coordination of space activities in the United Nations system. The recommendations of UNISPACE 82 have not yet been fully implemented. Hence, we should attempt to promote and activate cooperation between the developing countries and the developed countries. We must emphasize the inadequacy of the funds allocated by the United Nations to these programmes.

In addition, it seems to us that the establishment of a regional centre for Latin America and the Caribbean is a matter of great importance. As space research is necessarily linked with problems of development and with the functioning of a body established for this purpose. In this context, we need awareness and cooperation, as well as a considerable increase in the region's capacity to negotiate support for research projects on space matters.

Another item on the Subcommittee's agenda was "Matters relating to remote sensing of the Earth by satellites, including, *inter alia*, applications for developing countries". Here, it seems to us important to emphasize the need for the exchange of information and data between different blocs of countries, particularly those countries that will be the object of remote sensing in respect of such sensitive matters as their natural resources. We should seek to ensure support for any non-discriminatory body in this field.

On the question of the use of nuclear power sources in outer space, my country has continued to comply with General Assembly resolution 47/68, of 14 December 1992, and we therefore approve of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space. My country is in favour of giving immediate assistance to any State that is endangered by these devices, particularly if they have nuclear power sources.

Chile has also called for the adoption of measures designed to determine international cooperation responsibility more effectively and to provide for reparations for damage caused in this way.

Space debris is a priority item both for Chile and for the Subcommittee. We should like to see a proper database detailing the characteristics, quantity and circumstances of space debris. The plan that has been designed should continue to be implemented — but flexibly.

With regard to the space transportation system and its implications for future activities in space, my country, although it does not have such a system, believes that we must take account of the projects and expositions on this space item that have been presented by the more developed countries. We repeat what we said in the general debate: that, with regard to space debris, we believe that there could be included in the agenda of the Legal Subcommittee an item entitled "General principles of international law relating to the environment from a comparative point of view".

With regard to space activities related to the environment, we should be interested in obtaining from the more developed countries a commitment concerning the setting of standards for the use of resources. The secretariat *pro tempore* of the Second Space Conference of the Americas could act as an instrument for the promotion of such cooperation between groups of countries or in the entire region. In this connection, we believe that it is essential to have proper coordination of space information on environmental matters between various environmental secretariats and conventions.

On the question of space technology applied for education, there are certain points that should be emphasized. The secretariat *pro tempore* made an interesting proposal concerning space as an education medium. We also hope to hold two seminars — one of them on education and the use of satellite technology.

Finally, with regard to the possibility of holding a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), we should like to repeat that, given the recent profound changes in the world and the progress that has been made in the field of technology since UNISPACE II, which was held in 1982, we believe there is full justification for a UNISPACE III. The objectives, venue and costs of such a conference would have to be agreed upon, and we believe that it should take place before the end of the century.

The Chairman: I now call on the Secretary-General of the International Society for Photogrammetry and Remote Sensing.

Mr. Fritz: I am very grateful for this opportunity to discuss the role of the International Society for Photogrammetry and Remote Sensing (ISPRS) with reference to agenda items 5 and 7.

Allow me, at the outset, to express the appreciation of the ISPRS delegation for the most capable leadership of the Chairman in improving the efficiency of the Committee on the Peaceful Uses of Outer Space.

I should also like to thank Mr. Jasentulyana and the United Nations Office for Outer Space Affairs for their dedication and hard work. Ever since their arrival in Vienna in late 1993 it has been well known throughout this United Nations centre that they work longer and harder than facilities here are structured to handle.

The International Society for Photogrammetry and Remote Sensing is a non-governmental organization composed of member organizations from 94 nations — normally, national professional societies — plus six active regional member organizations representing Europe, Asia, Africa, the Americas, Australia and Oceania, and 33 sustaining members, which represent corporations and research institutions.

ISPRS is the oldest international organization in the fields of remote sensing, photogrammetry and geographic information systems. This year marks the eighty-fifth anniversary of its founding, which, coincidentally, took place in the city of Vienna.

The aims and objectives of the ISPRS pertain to the development of international cooperation to serve the needs of humanity through the advancement of the science and technologies of remote sensing and photogrammetry, such as machine vision, computer vision and spacial information systems.

These endeavours are coordinated through our seven Technical Commissions and 47 Working Groups under their direction. Each Commission and its associated Working Groups is devoted to a different aspect of the science and is led by a different nation for a four-year term. As such, the ISPRS is the international organization which represents the scientific community of photogrammetry and remote sensing.

During the past year several significant events have occurred which have broadened our scope and activities relevant to the aims of this Committee. In Africa, we have witnessed the successful formation of a new ISPRS regional member, the African Association of Remote Sensing of the Environment, which includes representatives from over 33 African countries; and just last month, in the Americas, ISPRS welcomed its newest regional member, the Pan-American Institute of Geography and History, which is a body of the Organization of American States and which represents 19 nations in spacial sciences.

Two years ago, at the thirtieth session of the Scientific and Technical Subcommittee, I suggested for consideration by the Committee on the Peaceful Uses of Outer Space the development of a United Nations satellite — UNSAT — which could be devoted to recognized peaceful uses of outer space. It would be a high-resolution multispectral Earth-observing satellite that could be activated to monitor world events, whether catastrophic, political, humanitarian or environmental, and that could thus provide a timely, objective source of information for evaluation in a world-wide forum. It could be tasked by the United Nations with a primary purpose of world security to support, for example, peace-keeping, technical assistance, disaster relief, environmental protection and so forth, on a global basis.

It is in this context that the Committee should be aware of some major developments that are making this opportunity technically, politically and economically feasible. As members may know, in 1993 as many as six commercial organizations from various nations embarked on plans to develop and launch very-high-resolution digital Earth observation systems. Although the number of these highly competitive commercial ventures has reduced somewhat, it is clear that by the time the Committee meets next year the first of these high-resolution satellites, Early Bird, will already be operational and will be transmitting three-metre panchromatic scenes routinely. In the autumn of next year, the first one-metre very-high-resolution commercial Earth-observing satellite will be operating as well. It will also provide four-metre-resolution multispectral images. These cameras are highly pointable and thus can allow a revisit of any location on Earth in less than two days.

To a certain extent, these Earth-observing systems are a positive outgrowth of the conversion of defence technology to civil applications. However, regardless of the heritage of the technology, the fact remains that digital image resolutions will be from 10 to 100 times better than ever before available commercially. Hence, the information and applications deriving from these images will be significantly broadened, for both developing and more developed nations of the world, especially as pertains to the development of applications for the support of urban infrastructure.

The outer space Committee has discussed remote sensing since its infancy. Now, remote sensing is maturing as a viable, marketable commodity. Commercialization of Earth-observing systems in space is becoming a reality. Totally financed with private capital, these high-resolution systems are being built on the basis of glowing international market projections of the timely information needed for geographic information system (GIS) and Earth monitoring activities. The owner-operators of these commercial ventures have agreed to provide imagery on a non-discriminatory, timely basis within the precepts and principles set forth by this Committee and adopted by the General Assembly.

During the past year, each of these ventures has been forming multinational and regional alliances, partnerships and distribution centres to make the images available, from the satellite to the consumer, within 15 minutes to 48 hours from the moment of image acquisition. Suffice it to say that these commercial developments may well revolutionize the entire remote imaging community by the end of this century. It is appropriate for the Committee to be prepared to address these new issues as these systems come on line. The Principles Relating to Remote Sensing of the Earth from Outer Space will soon be newly tested. We should encourage the use of these high-resolution satellites as a stabilizing capability for the promotion of world peace. It is in this role that the Committee can provide the forum for leadership and for international consensus on imaging-system priorities.

I would be remiss if I did not mention that, in the interest of furthering international cooperation and understanding, the International Society for Photogrammetry and Remote Sensing will be participating in several international meetings and conferences that will address this topic. And from 9 to 19 July 1996, right next door at the Austria Centre, the ISPRS will convene its eighteenth quadrennial international congress, in which everyone here is invited to participate. These forums may well serve to focus remote sensing issues for discussion at a third United Nations Conference on the Exploration and Peaceful Uses of Outer Space.

Mr. Louet (France) (*interpretation from French*): It had been my intention to speak on the items before us, and particularly on the question of space debris, as it is one of the main items on the agenda of the Scientific and Technical Subcommittee. I wished to elaborate on some of the points I had referred to briefly in my statement during the general exchange of views. But having heard what the representative of Germany said yesterday on this subject, and having carefully read the written text of his statement this morning, I do not think I could be more convincing or adduce any stronger arguments than he, so I shall limit myself to endorsing fully what he said.

The meeting rose at 12.10 p.m.